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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.            | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------------|------------------|
| 10/567,704   | 10/31/2006  | Quintino Carvalho    | 1022702-000295                 | 2399             |
| 21839  | 7590        | 12/24/2008           |                                |                  |
| BUCHANAN, INGERSOLL & ROONEY PC<br>POST OFFICE BOX 1404<br>ALEXANDRIA, VA 22313-1404 |             |                      | EXAMINER<br>WINKLER, MELISSA A |                  |
|  |             |                      | ART UNIT                       | PAPER NUMBER     |
|  |             |                      | 1796                           |                  |
|  |             |                      | NOTIFICATION DATE              | DELIVERY MODE    |
|  |             |                      | 12/24/2008 ELECTRONIC          |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

### Office Action Summary

**Application No.**

10/567,704

**Applicant(s)**

CARVALHO ET AL.

**Examiner**

MELISSA WINKLER

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on September 16, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CS-100)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 9/16/08

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election with traverse of Claims 25 – 37, 45, and 46 in the reply filed on September 16, 2008 is acknowledged. The traversal is on the ground(s) that 37 C.F.R. 1.475(b) states that a national stage application containing claims only directed to a product and a process specially adapted for the manufacture of this product shall be considered to have unity of invention. This argument is found persuasive and the corresponding restriction requirement has been withdrawn. Claims 25 – 48 have therefore been examined in the current Office Action.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 25 – 30, 36, and 47** are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,437,013 to Kuwamura et al.

**Regarding Claims 25, 26 and 47.** Kuwamura et al. teach a flexible polyurethane prepared by reacting a polyol and polyisocyanate in the presence of a foaming agent (Column 7, Lines 28 – 34). The polyol may be a polyester polyol and the polyisocyanate may be a diisocyanate (Column 11, Line 66 – Column 12, Line 9; Column 13, Lines 47 - 48).

The foam has a density in the range of 10 - 900 kg/m<sup>3</sup> (0.1 - 0.9 g/cm<sup>3</sup>). The foam also has an Asker C hardness of 5 to 95 and a compression set of 3 to 35% (Column 5, Lines 44 - 56).

**Regarding Claim 27.** Kuwamura et al. teach the foam of Claim 25 has a tear strength of 0.5 to 50 kN/m (about 0.5 – 50 kg/cm) (Column 5, Lines 44 - 56).

**Regarding Claim 28.** Kuwamura et al. teach the foam of Claim 25 has a tensile strength of 0.5 to 20 MPA (about 5 – 204 kg/cm<sup>2</sup>) (Column 5, Lines 44 - 56).

**Regarding Claim 29.** Kuwamura et al. teach the foam of Claim 25 has a maximum elongation of 100 to 700% (Column 5, Lines 44 - 56).

**Regarding Claim 30.** Kuwamura et al. teach the foam of Claim 25 but are silent regarding its molding shrinkage. Consequently, the Office recognizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredient(s). Therefore, the claimed effects and physical properties, i.e. a molding shrinkage of less than or equal to

1.0%, would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

**Regarding Claim 36.** Kuwamura et al. teach the foam of Claim 25 wherein polyester may be produced using adipic and succinic acid (Column 12, Lines 18 – 28).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 31 – 35, 45, 46, and 48** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,437,013 to Kuwamura et al., as applied to Claim 25 above, and further in view of US 5,318,833 to Fujimoto et al.

**Regarding Claims 31 – 35 and 48.** Kuwamura et al. teach the foam of Claim 25 but do not teach it further contains a dispersed mineral particulate filler. However,

Fujimoto et al. teach incorporating precipitated silica particles into a polyester in an amount of 0.01 - 5 weight percent. The particles have an average particle diameter of 0.1 - 5 $\mu$ m (Column 3, Lines 48 - 50 and 63 - 65). Kuwamura et al. and Fujimoto et al. are analogous art as they are from the same field of endeavor, namely polyester compositions. At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate a mineral filler as taught by Fujimoto et al. in the polyester taught by Kuwamura et al. The motivation would have been that incorporating a mineral filler in the polyester achieves advantages in abrasion resistance in products formed from the polyester (Fujimoto et al.: Column 1, Lines 27 - 30).

**Regarding Claims 45 and 46.** Kuwamura et al. teach a shoe comprising a shoe sole prepared from the foam of Claim 31 (Column 15, Lines 53 - 67).

**Claims 38 - 40 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,437,013 to Kuwamura et al. in view of US 5,318,833 to Fujimoto et al., as applied to Claim 31 above, and further in view of US 4,822,827 to Bonk et al.

**Regarding Claims 38, 39, and 44.** Kuwamura et al. a process for preparing the foam of Claim 31 by reacting a polyol, foaming agent, and catalyst with a polyisocyanate compound (Column 15, Lines 19 - 25). The polyisocyanate compound may be a diisocyanate (Column 13, Lines 47 - 48).

Kuwamura et al. do not expressly teach the reaction mixture comprises the claimed polyesterdiol. However, Fujimoto et al. a polyester in which a filler is incorporated. The polyester is prepared by reacting dimethyl terephthalate, ethylene glycol, and a tetrahydrate in an esterification step. A slurry comprising precipitated silica particles is then added. The mixture subsequently undergoes a polycondensation reaction (Example 1) In the example, the dicarboxylic acid is a terephthalic acid. However, Fujimoto et al. teach adipic acid may be used as the dicarboxylic acid (Column 2, Lines 22 – 29). And while the example teaches adding silica after esterification, Fujimoto et al. teach silica particles may be added at any stage in the preparation of the polyester (Column 3, Lines 63 – 68). At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate a mineral filler as taught by Fujimoto et al. in the polyester taught by Kuwamura et al. The motivation would have been that incorporating a mineral filler in the polyester achieves advantages in abrasion resistance in products formed from the polyester (Fujimoto et al.: Column 1, Lines 27 – 30).

Kuwamura et al. also do not expressly teach the foam is prepared by extrusion. However, Bonk et al. teach polyurethane foams which may be prepared via a reaction extrusion process (Column 3, Lines 6 - 13). Kuwamura et al. and Bonk et al. are analogous art as they are from the same field of endeavor, namely polyurethanes. At

the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the foam taught by Kuwamura et al. by extruding it. The motivation would have been that extrusion is an efficient and continuous way to process foams and is associated with less material waste than other means of processing foams.

**Regarding Claim 40.** Kuwamura et al. teach the process of Claim 39 wherein polyester may be produced using adipic and succinic acid (Column 12, Lines 18 – 28).

**Claim 41** is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,437,013 to Kuwamura et al. in view of US 5,318,833 to Fujimoto et al. and US 4,822,827 to Bonk et al., as applied to Claim 40 above, and further in view of US 4,439,550 to Brennan.

**Regarding Claim 41.** Kuwamura et al. teach the process of Claim 40 but do not teach the dicarboxylic acid used is a mixture of adipic, glutaric, and succinic acid. However, Brennan teaches preparing a polyester in which the dicarboxylic acid comprises AGS flakes. The flakes contain adipic, glutaric, and succinic acid (Example VI). Kuwamura et al. and Brennan are analogous art as they are from the same field of endeavor, namely polyurethane foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the dicarboxylic acid mixture taught by Brennan to prepare the foam taught by Kuwamura et al. The motivation



would have been that the mixture taught by Brennan, which is a waste dicarboxylic acid stream (Column 10, Lines 9 – 10), could then be recycled into a useful product.

**Claims 42 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,437,013 to Kuwamura et al. in view of US 5,318,833 to Fujimoto et al. and US 4,822,827 to Bonk et al., as applied to Claim 39 above, and further in view of US 4,439,550 to Brennan.

**Regarding Claims 42 and 43.** Kuwamura et al. teach the process of Claim 40 but do not teach the dicarboxylic acid used is a mixture of adipic, glutaric, and succinic acid. However, Brennan teaches preparing a polyester in which the dicarboxylic acid comprises AGS flakes. The flakes contain 13 – 18% adipic acid, along with glutaric and succinic acid (Example VI). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the dicarboxylic acid mixture taught by Brennan to prepare the foam taught by Kuwamura et al. The motivation would have been that the mixture taught by Brennan, which is a waste dicarboxylic acid stream (Column 10, Lines 9 – 10), could then be recycled into a useful product.

**Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,437,013 to Kuwamura et al., as applied to Claims 25 and 36 above, and further in view of US 4,439,550 to Brennan.

**Regarding Claim 37.** Kuwamura et al. teach the foam of Claim 36 but do not teach glutaric acid among the dicarboxylic acids used. However, Brennan teaches preparing a polyester in which the dicarboxylic acid comprises AGS flakes. The flakes contain adipic, glutaric, and succinic acid (Example VI). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the dicarboxylic acid mixture taught by Brennan to prepare the foam taught by Kuwamura et al. The motivation would have been that the mixture taught by Brennan, which is a waste dicarboxylic acid stream (Column 10, Lines 9 – 10), could then be recycled into a useful product.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA WINKLER whose telephone number is (571)270-3305. The examiner can normally be reached on Monday - Friday 7:30AM - 5PM E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

MW  
December 18, 2008